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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,761	WOBBROCK ET AL.	
	Examiner	Art Unit	
	THOMAS M. REDDING	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/21/2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17, 20-36, 38-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17, 20-36, 38-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's response received on 4/21/2008 is fully considered herein. Claims 1-17, 20-36 and 38-71 are currently pending.

Claim Objections

2. In response to applicant's amendment to claims 8, 24, and 45 to correct the lack of antecedent basis for "said points" the previous objection to claims 8, 24, and 45 is withdrawn.

In response to applicant's amendment of the specification, within the limitations of the original claim language, to recite the details of a library as described in the claims, the objection to claims 10, 26 and 47 is withdrawn.

Claim Rejections - 35 USC § 101

3. In response to applicant's modification of claim 38 to recite a "computer readable memory", the 101 rejection for claim 38 and its dependents is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 4, 9-12, 17, 20 , 25-28, 33, 3438,39, 41, 46-49 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklarew (US 5, 297,216) in combination with Allen (US 5,214,428) and further in combination with Bera (US 6,754,387).

Regarding claim 1, Sklarew teaches [a] character recognition method ("The embodiment also comprises a pattern recognition algorithm which allows the translation of any written character or symbol, such as ideographs and scientific symbols, into computer text", Sklarew, column 4, line 4) comprising:
determining a sequence of comer hits within a template

Sklarew does not teach that the template is a physical template constraining an input device.

Allen working in the same field of endeavor of keyboardless data entry teaches a physical template constraining an input device ("an input panel for a computer having a grid of grooves along which a stylus is moved to input data to the computer. Sensors are provided for sensing the stylus movement, the output of the sensors being read by an input controller which translates the stylus movement into codes for use by the computer", Allen, column 2, line 22).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to combine a physical template as taught by Allen with the handwriting input system of Sklarew to enable "the stylus movement pattern to be uniform each time

a particular datum is entered, regardless of handwriting variations of different users", (Allen, column 2, line 34).

The combination of Sklarew and Allen does not explicitly teach identifying a character based on said sequence of comer hits.

Bera, working in the same problem solving area of pattern recognition ("The invention relates to a system, method and program product for pattern information processing, more particularly in the context of pattern recognition", column 1, line 8), does teach determining a sequence of corner hits within a guide ("Taking the corners of the pattern in turn in order from a first of the corners through the last of the corners, a first ordered sequence M of values representing the respective scalar distances between each corner of the polygonal pattern and each other corner is formed", Bera, column 1, line 34);
and identifying a symbol based on said sequence of corner hits ("Also, the invention may comprise or be operable for comparing said converted values for said first pattern with predetermined values representative of a selection of further patterns by way of a computer coded string search command", Bera, column 2, line 17).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the corner based pattern recognition method of Bera with the handwriting entry system of the combination of Sklarew and Allen "to provide a

relatively simple means of deciding if two geometrical objects, each of polygonal shape, are similar", Bera, column 1, line 23).

Regarding claim 17, the combination of Sklarew, Allen and Bera teach the elements that are common wit h claim 1. Sklarew also teaches determining a sequence of comer hits within a unistroke ("Characterizing a Stroke reduces the sequence of coordinates defining the Stroke or segment to a set of characteristics that are unique, generalized and minimal", Sklarew, column 17 line 1).

Regarding claim 33, the combination of Sklarew, Allen and Bera teaches [a] method of generating a stroke, comprising:
determining a sequence of corner hits ("Also, the invention may comprise or be operable for comparing said converted values for said first pattern with predetermined values representative of a selection of further patterns by way of a computer coded string search command", Bera, column 2, line 17) within a physical template constraining an input device ("an input panel for a computer having a grid of grooves along which a stylus is moved to input data to the computer. Sensors are provided for sensing the stylus movement, the output of the sensors being read by an input controller which translates the stylus movement into codes for use by the computer", Allen, column 2, line 22); and generating information indicative of the end of each stroke ("If the program determines that the pen is up, then the Stroke is determined as having

been completed and the program branches to decision box 156", Sklarew, column 15, line 8, and figure 8A).

Regarding claim 38, the combination of Sklarew, Allen and Bera teaches the elements that are common with claim 1. Sklarew also teaches computer readable memory carrying software which, when executed, performs a method ("Microcomputer 14 has been programmed in accordance with a computer program described herein below, to recognize the stream of locating signals and to store these signals in a computer memory", Sklarew, column 5, line 67) comprising: determining a sequence of comer hits within a physical template constraining an input device; and identifying a character based on said sequence of comer hits ("Also, the invention may comprise or be operable for comparing said converted values for said first pattern with predetermined values representative of a selection of further patterns by way of a computer coded string search command", Bera, column 2, line 17).

Regarding claims 2 and 39, the combination of Sklarew, Allen and Bera teaches wherein each of said sequences of corner hits defines a single stroke ("If the program determines that the pen is up, then the Stroke is determined as having been completed and the program branches to decision box 156", Sklarew, column 15, line 8, and figure 8A), and wherein each single stroke is representative of one of a letter, number, punctuation or mode ("if using the Roman alphabet, the twenty-six letters of the alphabet and the numerals from 0 to 9 would be inserted into the database. Punctuation

symbols, such as periods, commas, question marks, colons, semi-colons, hyphens and the like could also be inserted", Sklarew, column 11, line 34).

Regarding claims 4, 20, 34 and 41, the combination of Sklarew and Bera teaches wherein said input device is a touch sensitive surface ("the I/O screen includes a transparent touch screen incorporated over a substantially flat output display", Sklarew, column 1, line 27), said method additionally comprising detecting loss of contact with the touch sensitive surface, said loss of contact indicating the end of a stroke ("If the program determines that the pen is up, then the Stroke is determined as having been completed and the program branches to decision box 156", Sklarew, column 15, line 8, and figure 8A).

Regarding claims 9, 25, and 46, the combination of Sklarew, Allen and Bera teaches identifying a character is comprised of comparing the determined sequence of corner hits to data representative of a plurality of stored sequences of corner hits, selecting one of the stored sequences of corner hits based on said comparing, and outputting a character linked to said selected one of said stored sequences of corner hits (Sklarew, figure 5, reference 82 – comparing, reference 84 – selecting, and reference 86 – outputting).

Regarding claims 10, 26 and 47, the combination of Sklarew, Allen and Bera teaches said comparing includes comparing the determined sequence of corner hits to

a library of stored sequences of corner hits which is representational of a printed alphabet ("if using the Roman alphabet, the twenty-six letters of the alphabet and the numerals from 0 to 9 would be inserted into the database. Punctuation symbols, such as periods, commas, question marks, colons, semi-colons, hyphens and the like could also be inserted", Sklarew, column 11, line 34).

Regarding claims 11, 27 and 48, the combination of Sklarew, Allen and Bera teaches additionally comprising changing the stored sequences of corner hits that are linked to a character ("If it cannot be matched because there is no existing database or because there is a poor match with an existing database, the character is added to the database", Sklarew, column 11, line 57).

Regarding claims 12, 28, 49, the combination of Sklarew, Allen and Bera teaches changing includes providing one example of a sequence of comer hits and the letter character to which that sequence is to be linked ("In FIG. 10, one of a series of learning screens is displayed and the user is prompted to write the numbers 0 through 4. The computer will attempt to match the written numbers with the existing database (if any). If it cannot be matched because there is no existing database or because there is a poor match with an existing database, the character is added to the database. This learning process continues until all of the alphanumeric (or other) characters and symbols to be used are entered into the database", Sklarew, column 11, line 57, Sklarew provided

numbers as an example, but also indicates the process continues through the rest of the symbols including the letters).

Regarding claim 55, the combination of Sklarew, Allen and Bera teaches wherein said determining a sequence of comer hits includes determining a sequence of comer hits ("Taking the corners of the pattern in turn in order from a first of the corners through the last of the corners, a first ordered sequence M of values representing the respective scalar distances between each corner of the polygonal pattern and each other corner is formed", Bera, column 1, line 34) within a physical template constraining an input device ("an input panel for a computer having a grid of grooves along which a stylus is moved to input data to the computer. Sensors are provided for sensing the stylus movement, the output of the sensors being read by an input controller which translates the stylus movement into codes for use by the computer", Allen, column 2, line 22).

6. Claims 3, 40, 56, 57, 62-65 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklarew (US 5, 297,216), Allen (US 5,214,428) and Bera (US 6,754,387) in combination with Sano (US 5,832,113).

Regarding claims 3 and 40, the combination of Sklarew, Allen and Bera teach all the elements of claim 2 as given above.

The combination of Sklarew, Allen and Bera does not teach identifying a letter character as being upper case when said stroke representative of said character ends

in a common predetermined comer and lower case when said stroke does not end in said common predetermined comer.

Sano, working in the same area of endeavor of touch pad text entry does teach identifying a letter character as being upper case when said stroke representative of said character ends in a common predetermined comer and lower case when said stroke does not end in said common predetermined comer (“For instance, as shown in FIG. 6, when the user touches the key representation "A" in a normal manner, the lowercase letter "a" is entered; when the user checks the same portion, the uppercase letter "A" is entered”, Sano, column 4, line 30).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the stroke shape technique taught by Sano with the handwriting entry system of the combination of Sklarew, Allen and Bera to “enables the input of a character with a single pen operation, regardless of the type of character, such as an uppercase character, a lowercase character, or a special symbol”, Sano, column 1, line 52).

Regarding claim 56, the combination of Sklarew, Allen, Bera and Sano teaches [a]computer readable memory carrying software (“Microcomputer 14 has been programmed in accordance with a computer program described herein below, to recognize the stream of locating signals and to store these signals in a computer memory”, Sklarew, column 5, line 67) which, when executed, performs a method, comprising:

determining a sequence of comer hits within a unistroke; identifying a letter character based on said sequence of comer hits; and identifying said letter character as being upper case when said unistroke ends in a common predetermined comer and lower case when said unistroke does not end in the common predetermined comer ("For instance, as shown in FIG. 6, when the user touches the key representation "A" in a normal manner, the lowercase letter "a" is entered; when the user checks the same portion, the uppercase letter "A" is entered", Sano, column 4, line 30).

Regarding claim 57, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches detecting loss of contact with a touch sensitive surface, said loss of contact indicating the end of the unistroke ("If the program determines that the pen is up, then the Stroke is determined as having been completed and the program branches to decision box 156", Sklarew, column 15, line 8, and figure 8A).

Regarding claim 62, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches comparing the determined sequence of corner hits to data representative of a plurality of stored sequences of comer hits, selecting one of the stored sequences of comer hits based on said comparing, and outputting the letter character linked to said selected one of said stored sequences of comer hits (Sklarew, figure 5, reference 82 – comparing, reference 84 – selecting, and reference 86 – outputting).

Regarding claim 63, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches comparing includes comparing the determined sequence of comer hits to a library of stored sequences of comer hits which is representational of a printed alphabet ("if using the Roman alphabet, the twenty-six letters of the alphabet and the numerals from 0 to 9 would be inserted into the database. Punctuation symbols, such as periods, commas, question marks, colons, semi-colons, hyphens and the like could also be inserted", Sklarew, column 11, line 34).

Regarding claim 64, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches changing the stored sequences of corner hits that are linked to a letter character ("If it cannot be matched because there is no existing database or because there is a poor match with an existing database, the character is added to the database", Sklarew, column 11, line 57).

Regarding claim 65, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches changing includes providing one example of a sequence of comer hits and the letter character to which that sequence is to be linked ("In FIG. 10, one of a series of learning screens is displayed and the user is prompted to write the numbers 0 through 4. The computer will

attempt to match the written numbers with the existing database (if any). If it cannot be matched because there is no existing database or because there is a poor match with an existing database, the character is added to the database. This learning process continues until all of the alphanumeric (or other) characters and symbols to be used are entered into the database", Sklarew, column 11, line 57, Sklarew provided numbers as an example, but also indicates the process continues through the rest of the symbols including the letters).

Regarding claim 71, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above. The combination also teaches determining a sequence of comer hits includes determining a sequence of comer hits ("Taking the corners of the pattern in turn in order from a first of the corners through the last of the corners, a first ordered sequence M of values representing the respective scalar distances between each corner of the polygonal pattern and each other corner is formed", Bera, column 1, line 34) within a physical template constraining an input device("an input panel for a computer having a grid of grooves along which a stylus is moved to input data to the computer. Sensors are provided for sensing the stylus movement, the output of the sensors being read by an input controller which translates the stylus movement into codes for use by the computer", Allen, column 2, line 22).

7. Claims 5 - 8, 21-24, 35, 36, 42-45, 54 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklarew (US 5, 297,216), Allen (US 5,214,428) and Bera (US 6,754,387) in combination with Wu et al. (US 2003/0006956).

Regarding claims 5, 21, 35 and 42, the combination of Sklarew, Allen and Bera teaches the elements in common with the parent claims as given above.

The combination of Sklarew, Allen, and Bera does not teach detecting the actuation of a switch, said actuation indicating the end of a unistroke.

Wu, working in the same field of endeavor of character input does teach detecting the actuation of a switch, said actuation indicating the end of a unistroke . (Wu, figs 4, 5 and 6; and "The alternative input device has a joystick element 100", paragraph 47 and "In one embodiment, the microswitch 150 is used as a pen-down indicator. In this variation, a single input stroke is measured from pen-down to pen-up", Wu, paragraph 53).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the joystick of Wu with the character recognition system of Sklarew, Allen and Bera to provide a means of input in a small space where there is not enough room for a suitable touchpad ("The tablet area does not permit use of the method on very small devices such as small mobile telephones", Wu, paragraph 10). It

also avoids the need for a separate stylus which may get lost ("The stylus is an inconvenient additional element, as it can be lost", Wu, paragraph 10) and using a switch "has the advantage of disambiguating between pen-down and pen-up segments" (Wu, paragraph 53) .

Regarding claims 6, 22 and 43, the combination of Sklarew, Allen and Bera teaches the elements in common with the parent claims as given above.

The combination of Sklarew, Allen and Bera does not teach wherein said input device is a joystick, said method additionally comprising detecting lack of movement of the joystick for a predetermined period of time, said lack of movement indicating the end of a stroke.

Wu, working in the same field of endeavor of character input does teach wherein said input device is a joystick, said method additionally comprising detecting lack of movement of the joystick for a predetermined period of time, said lack of movement indicating the end of a stroke (Wu, figs 4, 5 and 6; and "The alternative input device has a joystick element 100", paragraph 47, and "A timer is started for each letter entry. Preferably the timer begins with the first key-press of a new character. All strokes entered before the time-out are considered as a single entry (character or numeral)", Wu, paragraph 41).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the detection of a lack of movement to detect end of input as taught by Wu with the character recognition system of Sklarew, Allen and Bera to provide a means of input in a small space where there is not enough room for a suitable touchpad ("The tablet area does not permit use of the method on very small devices such as small mobile telephones", Wu, paragraph 10). It also avoids the need for a separate stylus which may get lost ("The stylus is an inconvenient additional element, as it can be lost", Wu, paragraph 10).

Regarding claims 7, 23, 36 and 44, the combination of Sklarew, Allen, Bera and Wu teaches detecting lack of movement includes detecting the joystick at two identical positions within said predetermined period of time ("The joystick element 100 is mounted on a spring-loaded mounting illustrated as a ball-and-socket mounting 101 by way of example. The mounting is biased such that the joystick element returns to a central resting position (not shown) when not under thumb or finger pressure", Wu, paragraph 47, if the user releases the joystick, it will return to center for as many sample periods occur before the timeout).

Regarding claims 8, 24, and 45 the combination of Sklarew, Allen, Bera and Wu teaches wherein said positions correspond to a center point ("The joystick element 100 is mounted on a spring-loaded mounting illustrated as a ball-and-socket mounting 101 by way of example. The mounting is biased such that the joystick element returns to a

central resting position (not shown) when not under thumb or finger pressure", Wu, paragraph 47, if the user releases the joystick, it will return to center for as many sample periods occur before the timeout).

Regarding claims 54 and 70, the combination of Sklarew, Allen, Bera and Wu teaches wherein said determining a sequence includes determining a sequence of comer hits ("Taking the corners of the pattern in turn in order from a first of the corners through the last of the corners, a first ordered sequence M of values representing the respective scalar distances between each corner of the polygonal pattern and each other corner is formed", Bera, column 1, line 34) resulting from a unistroke ("a single input stroke is measured from pen-down to pen-up", Wu, paragraph 53).

8. Claims 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklarew (US 5, 297,216), Allen (US 5,214,428) and Bera (US 6,754,387) and Sano (US 5,832,113) in combination with Wu et al. (US 2003/0006956).

Regarding claim 58, the combination of Sklarew, Allen, Bera and Sano teaches all the elements of claim 56 as given above.

The combination does not teach detecting the actuation of a switch, said actuation indicating the end of the unistroke.

Wu, working in the same field of endeavor of character input does teach detecting the actuation of a switch, said actuation indicating the end of a unistroke . (Wu, figs 4, 5 and 6; and "The alternative input device has a joystick element 100", paragraph 47 and "In one embodiment, the microswitch 150 is used as a pen-down indicator. In this variation, a single input stroke is measured from pen-down to pen-up", Wu, paragraph 53).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the joystick of Wu with the character recognition system of Sklarew, Allen, Bera and Sano to provides a means of input in a small space where there is not enough room for a suitable touchpad ("The tablet area does not permit use of the method on very small devices such as small mobile telephones", Wu, paragraph 10). It also avoids the need for a separate stylus which may get lost ("The stylus is an inconvenient additional element, as it can be lost", Wu, paragraph 10) and using a switch "has the advantage of disambiguating between pen-down and pen-up segments" (Wu, paragraph 53) .

Regarding claim 59, the combination of Sklarew, Allen, Bera, and Sano teaches all the elements of claim 56 as given above.

The combination of Sklarew, Allen, Bera and Sano does not teach wherein said input device is a joystick, said method additionally comprising detecting lack of movement of the joystick for a predetermined period of time, said lack of movement indicating the end of a stroke.

Wu, working in the same field of endeavor of character input does teach wherein said input device is a joystick, said method additionally comprising detecting lack of movement of the joystick for a predetermined period of time, said lack of movement indicating the end of a stroke (Wu, figs 4, 5 and 6; and "The alternative input device has a joystick element 100", paragraph 47, and "A timer is started for each letter entry. Preferably the timer begins with the first key-press of a new character. All strokes entered before the time-out are considered as a single entry (character or numeral)", Wu, paragraph 41).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the detection of a lack of movement to detect end of input as taught by Wu with the character recognition system of Sklarew, Allen, Bera and Sano to provide a means of input in a small space where there is not enough room for a suitable touchpad ("The tablet area does not permit use of the method on very small devices such as small mobile telephones", Wu, paragraph 10). It also avoids the need for a separate stylus which may get lost ("The stylus is an inconvenient additional element, as it can be lost", Wu, paragraph 10).

Regarding claim 60, the combination of Sklarew, Allen, Bera, Sano and Wu teaches all the elements of claim 59 as given above. The combination also teaches detecting lack of movement includes detecting the joystick at two identical positions within said predetermined period of time ("The joystick element 100 is mounted on a spring-loaded mounting illustrated as a ball-and-socket mounting 101 by way of example. The mounting is biased such that the joystick element returns to a central resting position (not shown) when not under thumb or finger pressure", Wu, paragraph 47, if the user releases the joystick, it will return to center for as many sample periods occur before the timeout).

Regarding claim 61, the combination of Sklarew, Allen, Bera, Sano and Wu teaches all the elements of claim 60 as given above. The combination also teaches wherein said positions correspond to a center point wherein said positions correspond to a center point ("The joystick element 100 is mounted on a spring-loaded mounting illustrated as a ball-and-socket mounting 101 by way of example. The mounting is biased such that the joystick element returns to a central resting position (not shown) when not under thumb or finger pressure", Wu, paragraph 47, if the user releases the joystick, it will return to center for as many sample periods occur before the timeout).

9. Claims 1, 17 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312) in combination with Zadesky et al. (US 2003/0076306).

Regarding claims 1, 17 and 38, Comerford teaches [a] character recognition method, comprising:

determining a sequence of comer hits (Comerford, figure 5 shows characters snapped to a template consisting of lines and corner, either of which are sufficient to define a pattern); and

identifying a character based on said sequence of comer hits ("The recognizer constructs from the completed glyph an ordered sequence of designators 36 corresponding to the template line segments which were selected in the "snap" operations. The recognizer then compares the ordered sequence to entries in a reference table, as shown at 37", Comerford, column 8, line 24 and figure 5. Note the information presented by edges can be equivalently shown by a sequence of nodes or corners of the resulting graph).

Comerford does not expressly describe a physical template constraining an input device.

Zadesky, working in the same field of endeavor of computer input through touch sensitive devices does teach a physical template constraining an input device ("In

general, the outer perimeter of the shaped touch pad defines the working boundary of the touch pad", Zadesky, paragraph 44, input to the touchpad is constrained by the frame).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the teaching of Zadesky to use a physical framework to define the input boundaries of a touch pad with the character input system of Comerford to allow a user to determine the extent of the input area without looking.

Further regarding claim 38, the combination of Comerford and Zadesky teaches [a] computer readable memory carrying software which, when executed, performs the method described in claim 17 ("It is therefore an object of the present invention to provide a method of handwriting recognition for computers which separates the act of stylus input by the user from the process of recognition by means of a stage providing visual feedback to the user", Comerford, column 3, line 60, and "Because of the simplicity of this scheme both the data space and the code space requirements for the recognizer are very small. The code space is small because of the simplicity of the algorithms which generally can be table driven. The data space is small because it is defined by a simple referent and referenced data structure", Comerford, column 5, line 1, and "Appropriate software means can be employed to insert a recognized character's computer codes into the keyboard", Comerford, column 7, line 42, Comerford's system uses software which must be provided in a computer readable form).

10. Claims 2 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312) and Zadesky et al. (US 2003/0076306) in combination with Sklarew (US 5, 297,216).

Regarding claims 2 and 39, the combination of Comerford and Zadesky teaches all the elements in common with the parent claims 1 and 38.

The combination of Comerford and Zadesky does not teach wherein each of said sequences of comer hits defines a single stroke, and wherein each single stroke is representative of one of a letter, number, punctuation or mode.

Sklarew, working in the same field of endeavor of handwriting entry does teach wherein each of said sequences of corner hits defines a single stroke ("If the program determines that the pen is up, then the Stroke is determined as having been completed and the program branches to decision box 156", Sklarew, column 15, line 8, and figure 8A), and wherein each single stroke is representative of one of a letter, number, punctuation or mode ("if using the Roman alphabet, the twenty-six letters of the alphabet and the numerals from 0 to 9 would be inserted into the database. Punctuation symbols, such as periods, commas, question marks, colons, semi-colons, hyphens and the like could also be inserted", Sklarew, column 11, line 34).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the unistroke input method taught by Sklarew in the character input system of the combination of Comerford and Zadesky to allow simple and quick entry of characters.

11. Claims 13, 29 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312) and Zadesky et al. (US 2003/0076306) in combination with Hildebrand (US 2003/0234766).

Regarding claims 13, 29 and 50, the combination of Comerford and Zadesky teaches all the elements of parent claims 1 and 17 as given above.

The combination of Comerford and Zadesky does not teach wherein said comer hits include comer area hits, said method additionally comprising varying the size of the comer areas while said sequence of corner hits is determined.

Hildebrand, working the same field of endeavor of text entry on touch sensitive devices does teach wherein said comer hits include comer area hits, said method additionally comprising varying the size of the comer areas while said sequence of corner hits is determined ("In this regard, the input may be viewed as being a vector

with both a direction and a magnitude. When the cursor driver logic determines that the vector has more than a predetermined magnitude in a particular direction (e.g., movement of a finger a sufficient length on a touch pad or bending of a cursor nub a sufficient amount and/or for a sufficient period of time), cursor driver logic concludes that the next key in a direction corresponding to the vector has been selected. Different magnitude thresholds may be used to adjust the sensitivity of the finger controllable mechanism and the cursor driver logic. The thresholds may optionally be user adjustable to accommodate different users (e.g., different users may want shorter or longer finger movements on a touch pad to correspond to different key movements). The thresholds may optionally be adjusted by the device itself where the device includes logic which learns from the user his or her style of usage", Hildebrand, paragraph 129, Hildebrand teaches a device dynamically varying its sensitivity based on usage).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use Hildebrand's method of dynamically altering device sensitivity with the character recognition system of Comerford and Zadesky to "accommodate different users (e.g., different users may want shorter or longer finger movements on a touch pad to correspond to different key movements", Hildebrand, paragraph 129).

12. Claims 14-16, 30-32 and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312), Zadesky et al. (US 2003/0076306) and Hildebrand (US 2003/0234766) in combination with Dimond (US 3,108,254).

Regarding claims 14, 30 and 51, the combination of Comerford, Zadesky and Hildebrand teaches all the elements of claims 13, 29 and 50 as given above.

The combination of Comerford, Zadesky and Hildebrand does not teach wherein said varying the size includes decreasing the size of only certain comer areas.

Dimond, working in the same field of endeavor of written character recognition does teach varying the size includes decreasing the size of only certain comers (Dimond, figures 12 and 13, the corners on the left side are larger than the corners on the right).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to combine the handwriting guide and reader of Dimond with the character recognition system of Comerford, Zadesky and Hildebrand to have text that is "automatically and accurately readable by relatively simple reading means" (Dimond, column 3, line 23) and where "The constriction imposed upon the writer is nominal and accordingly does not interfere with his normal writing habits Considerable latitude is permissible in the hand writing of the characters while maintaining a high degree of accuracy from the automatic reading means (Dimond, column 3, line 29).

Regarding claims 15, 31 and 52, the combination of Comerford, Zadesky, Hildebrand and Dimond teaches wherein said varying the size includes decreasing the size of certain comer areas more than the size of other comer areas (Dimond, figures 12 and 13, the upper right corner is smaller than the other 3 corners).

Regarding claims 16, 32 and 53, the combination of Comerford, Zadesky, Hildebrand and Dimond teaches wherein said comer hits include comer area hits, said method additionally comprising varying the shape of the comer areas (Dimond, figures 12 and 13, no two corners are the same shape) while said sequence of corner hits is determined ("The thresholds may optionally be adjusted by the device itself where the device includes logic which learns from the user his or her style of usage", Hildebrand, paragraph 129, Hildebrand teaches a device dynamically varying its sensitivity based on usage).

13. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312) and Zadesky et al. (US 2003/0076306) in combination with Sano (US 5,832,113).

Regarding claim 56, the combination of Comerford and Zadesky teaches [a] computer readable memory carrying software which, when executed, performs a method ("Because of the simplicity of this scheme both the data space and the code space requirements for the recognizer are very small. The code space is small because

of the simplicity of the algorithms which generally can be table driven. The data space is small because it is defined by a simple referent and referenced data structure", Comerford, column 5, line 1, and "Appropriate software means can be employed to insert a recognized character's computer codes into the keyboard", Comerford, column 7, line 42, Comerford's system uses software which must be provided in a computer readable form), comprising:

determining a sequence of comer hits within a unistroke; identifying a letter character based on said sequence of comer hits ("The recognizer constructs from the completed glyph an ordered sequence of designators 36 corresponding to the template line segments which were selected in the "snap" operations. The recognizer then compares the ordered sequence to entries in a reference table, as shown at 37", Comerford, column 8, line 24 and figure 5. Note the information presented by edges can be equivalently shown by a sequence of nodes or corners of the resulting graph).

The combination of Comerford and Zadesky does not teach

identifying said letter character as being upper case when said unistroke ends in a common predetermined comer and lower case when said unistroke does not end in the common predetermined comer.

Sano, working in the same area of endeavor of touch pad text entry does teach identifying a letter character as being upper case when said stroke representative of said character ends in a common predetermined comer and lower case when said stroke does not end in said common predetermined comer ("For instance, as shown in

FIG. 6, when the user touches the key representation "A" in a normal manner, the lowercase letter "a" is entered; when the user checks the same portion, the uppercase letter "A" is entered", Sano, column 4, line 30).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use the stroke shape technique taught by Sano with the handwriting entry system of the combination of Comerford and Zadesky to "enables the input of a character with a single pen operation, regardless of the type of character, such as an uppercase character, a lowercase character, or a special symbol", Sano, column 1, line 52).

14. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312), Zadesky et al. (US 2003/0076306) and Sano (US 5,832,113) in combination with Hildebrand (US 2003/0234766).

Regarding claim 66, the combination of Comerford, Zadesky and Sano teaches all the elements of claim 56 as given above.

The combination of Comerford, Zadesky and Sano does not teach wherein said comer hits include comer area hits, said method additionally comprising varying the size of the comer areas while said sequence of corner hits is determined.

Hildebrand, working the same field of endeavor of text entry on touch sensitive devices does teach wherein said comer hits include comer area hits, said method additionally comprising varying the size of the comer areas while said sequence of corner hits is determined ("In this regard, the input may be viewed as being a vector with both a direction and a magnitude. When the cursor driver logic determines that the vector has more than a predetermined magnitude in a particular direction (e.g., movement of a finger a sufficient length on a touch pad or bending of a cursor nub a sufficient amount and/or for a sufficient period of time), cursor driver logic concludes that the next key in a direction corresponding to the vector has been selected. Different magnitude thresholds may be used to adjust the sensitivity of the finger controllable mechanism and the cursor driver logic. The thresholds may optionally be user adjustable to accommodate different users (e.g., different users may want shorter or longer finger movements on a touch pad to correspond to different key movements). The thresholds may optionally be adjusted by the device itself where the device includes logic which learns from the user his or her style of usage", Hildebrand, paragraph 129, Hildebrand teaches a device dynamically varying its sensitivity based on usage).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to use Hildebrand's method of dynamically altering device sensitivity with the character recognition system of Comerford, Zadesky and Sano to "accommodate different users (e.g., different users may want shorter or longer finger

movements on a touch pad to correspond to different key movements", Hildebrand, paragraph 129).

15. Claims 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Comerford et al. (US 5,303,312), Zadesky et al. (US 2003/0076306), Sano (US 5,832,113) and Hildebrand (US 2003/0234766) in combination with Dimond (US 3,108,254).

Regarding claim 67 the combination of Comerford, Zadesky, Sano and Hildebrand teaches all the elements of claims 13, 29 and 50 as given above.

The combination of Comerford, Zadesky, Sano and Hildebrand does not teach wherein said varying the size includes decreasing the size of only certain comer areas.

Dimond, working in the same field of endeavor of written character recognition does teach varying the size includes decreasing the size of only certain comers (Dimond, figures 12 and 13, the corners on the left side are larger than the corners on the right).

It would have been obvious at the time the invention was made for one of ordinary skill in the art to combine the handwriting guide and reader of Dimond with the character recognition system of Comerford, Zadesky, Sano and Hildebrand to have text that is "automatically and accurately readable by relatively simple reading means" (Dimond, column 3, line 23) and where "The constriction imposed upon the writer is

nominal and accordingly does not interfere with his normal writing habits Considerable latitude is permissible in the hand writing of the characters while maintaining a high degree of accuracy from the automatic reading means (Dimond, column 3, line 29).

Regarding claim 68, the combination of Comerford, Zadesky, Sano, Hildebrand and Dimond teaches wherein said varying the size includes decreasing the size of certain comer areas more than the size of other comer areas (Dimond, figures 12 and 13, the upper right corner is smaller than the other 3 corners).

Regarding claim 69, the combination of Comerford, Zadesky, Sano, Hildebrand and Dimond teaches wherein said comer hits include comer area hits, said method additionally comprising varying the shape of the comer areas (Dimond, figures 12 and 13, no two corners are the same shape) while said sequence of corner hits is determined ("The thresholds may optionally be adjusted by the device itself where the device includes logic which learns from the user his or her style of usage", Hildebrand, paragraph 129, Hildebrand teaches a device dynamically varying its sensitivity based on usage).

Response to Arguments

Summary of Applicant's Remarks: The prior art of record does not teach constraining of an input device by a physical template.

Examiner's Response: Applicant's arguments with respect to claims 1, 17, 33 and 38 have been considered but are moot in view of the new ground(s) of rejection. In updated form, the claim language introduces a physical template constraining an input device, it can be interpreted as providing an outer boundary of a working space and does not require that the corners of the input symbol correspond to the corners of this physical template. See updated claim rejections.

Summary of Applicant's Remarks: Claim 17 has been amended to describe strokes defining letter characters are determined to be uppercase when they conclude in a common predetermined corner and lower case if they do not.

Examiner's Response: Applicant's arguments with respect to claim 17 have been considered but are moot in view of the new ground(s) of rejection. Similar to the preceding, the problem is the corner indicated in the amended claim language is not clearly associated with the template corners. See updated claim rejections

Summary of Applicant's Remarks: Claims 13-16, 29-32 and 40-53 have been amended to indicate corners sizes and shapes are dynamically varied during the course of input.

Examiner's Response: Applicant's arguments with respect to claims 13-16, 29-32 and 40-53 have been considered but are moot in view of the new ground(s) of rejection. See updated claim rejections.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Gay (US 6,647,145) teaches a system that similarly reduces handwriting input to sequences of 4 elements.

Zondag (US 2004/0145576) teaches varying touch pad sensitivity.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS M. REDDING whose telephone number is (571)270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. M. R./
Examiner, Art Unit 2624

/Vikkram Bali/
Supervisory Patent Examiner, Art Unit 2624